Conscious Sedation (≥ PL6)

Clinical Indications:

1. Online Medical Control (OLMC) is required prior to providing conscious sedation.
2. Patient needing an acute intervention that is known to be painful but could help reduce the patient's overall pain, or there is risk for vascular or neurologic compromise:
   a. Fracture reduction with CSM compromise
   b. Dislocated joint reduction
   c. Field amputation
   d. Chemically facilitated extrication
   e. Synchronized cardioversion
   f. Facilitated primary wound closure (≥ PL7)

Contraindications:

1. Procedure is likely to be unsuccessful
2. Equipment or personnel not available to properly monitor patient
3. Patient's size and body composition is such that an adverse reaction would be difficult to manage (airway compromise)

Preparation:

1. Have ≥PL6 and at-least one additional ALS provider on scene (≥PL5).
2. Obtain patent vascular access
3. Ensure baseline vitals have been obtained
4. Apply high flow nasal cannula and/or nonrebreather at flush rate
5. Apply continuous EtCO2, 4-lead ECG and SpO2
6. Ensure airway, ventilation, and suction equipment are available and operational
7. Consult / receive consent as able, and/or OLMC as required
8. Providers must utilize the Conscious Sedation Checklist

Procedure:

1. Assign one provider to watch the patient's respiratory effort, SpO_2 and $EtCO_2$. Immediately inform the care team if: SpO_2 < 90%, or $EtCO_2$ > 45 or < 35, or patient has signs of insufficient respiratory effort or becomes apneic.
2. If conscious sedation is being performed to facilitate an elective procedure, rather than a lifesaving intervention, then verbal consent must be attained utilizing the verbal consent script on the Conscious Sedation Checklist.
3. Goal is escalating doses of medications to achieve sedation level appropriate for successful completion of procedure, maintaining patient's ability to control their own airway and hemodynamics.
4. There is strong evidence that utilization of multiple agents reduces the amount of each medication given and can reduce adverse events.
5. Although re-emergence reactions are infrequent with ketamine, benzodiazepines have been shown to reduce this risk. Start with a dose of midazolam; for the healthy adult 2.5 mg is a good starting dose. Can adjust based on age and patients' size etc.
6. Ketamine should follow 2 minutes after the benzodiazepine.
7. Monitor for signs of sedation: disassociation, non-verbal, slight increase in CO2, muscle relaxation. If sedation goal is not reached in 3 minutes after initial ketamine administration, can give repeat and escalating dosing of medications.

8. Escalating dosing options:

Medication		Dose	Time Interval	Max Dose
Versed	1st	2mg	Initial	
	2nd	0.5-2 mg	5 minutes	
	3rd	0.5-2 mg	Q5 minutes	10mg
Ketamine	1st	1 mg/kg	Initial	100mg
	2nd	0.5 mg/kg	3 minutes	
	3rd	0.5 mg/kg	Q3 minutes	400 mg
Fentanyl	1st	50 mcg	Initial	
	2nd	50 mcg or 1 mcg/kg	10 minutes	
	3rd	50 mcg or 1 mcg/kg	Q10 minutes	400 mcg

9. Once sedation is achieved, perform procedure as quickly as safely possible, if fracture/dislocation splint extremity immediately after procedure and preferably before the patient regains consciousness.
10. If there are any adverse reactions to sedation, such as hypoxia below 90%, immediately suspend procedure and address any life-threatening events: airway, blood pressure, medication reaction, ect.
11. May need to repeat dosing during procedure, use above table.
12. Needs to have continuous monitoring until patient has returned to baseline mental status. Vitals should be recorded every 5 minutes while sedated.
13. Document in ePCR: indications for procedure, start and stop time and any adverse events.

Clinical Pearls:

- Ketamine can cause laryngospasm, push the medication over 1 minute. If laryngospasm is noted, the initial treatment is positive pressure ventilation.
- The risk of aspiration with conscious sedation is low, however if patient had a large meal, specifically if associate with alcohol consumption, watch closely for aspiration.
- Even with initial dosing of benzodiazepine, if patient whom has not received subsequent benzodiazepine dosing yet high ketamine dosing is believed to be experience an emergence reaction, give a low dose of versed to relieve this event.
- If patient is clinically intoxicated, greatly reduced dosing is indicated. Increased risk of airway compromise in this population.
- Most times when patients are over-sedated, this can be managed with BLS airway maneuvers and time as ketamine's duration of action is short.